

STATE OF TENNESSEE **DEPARTMENT OF HEALTH ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

Geoff Klein

TDEC-DWS 200 East Race St Knoxville, TN 37763 Lab ID: N00004449 Nashville Central Laboratory

Sampling Agency: TDEC: Division of Water Supply

Billing Code:

327.39-12

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

N00004449001

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: RAW

Project Site No.:

Station No.:

Date/Time Collected:

04/27/2009

Sampler's Name:

09:30 **GEOFF KLEIN**

County:

ROANE - 73

Sample Matrix:

Water

EFO: Sampling Agency: Knoxville

Billing Code:

TDEC-DWS 327.39-12

Send Report To: Agency Invoiced: **TDEC-DWS** TDEC-DWS

Priority Date:

Date/Time Received:

04/27/2009

11:45

Received By:

L Barrociere

Field Determinations pH:

Chlorine, residual: **Conductivity:** Temperature: **Dissolved Oxygen:**

Other: Flow:

CFS

TEST: Alkalinity, Total	METHOD: EPA 310.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	57	mg/L	3.8	10	M Chen	4/28/2009

TEST: Hardness, Calcium	ME	THOD: SM 350				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	42	mg/L	0.7	1	M Chen	4/27/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004449002

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

Date/Time Collected:

04/27/2009 09:35

Sampler's Name:

GEOFF KLEIN

County: Sample Matrix: **ROANE - 73**

EFO:

Water Knoxville

Sampling Agency: **Billing Code:**

TDEC-DWS 327.39-12

Send Report To: Agency Invoiced:

TDEC-DWS TDEC-DWS

Priority Date:

Date/Time Received:

04/27/2009

11:45

57

Received By:

Total Alkalinity

L Barrociere

TEST: Alkalinity, Total	MET	THOD: EPA 31				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE

mg/L

Field Determinations

Chlorine, residual:

Dissolved Oxygen:

CFS

4/28/2009

Conductivity:

Temperature:

pH:

Other:

Flow:

3.8

10

M Chen

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	45	mg/L	0.7	1	M Chen	4/27/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004449003

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: RAW

Project Site No.:

Station No.:

Date/Time Collected:

04/27/2009 10:00

Sampler's Name:

GEOFF KLEIN

County:

ROANE - 73

Sample Matrix: EFO:

Water

Complin

Knoxville

Sampling Agency: Billing Code:

TDEC-DWS

Send Report To:

327.39-12

Agency Invoiced:

TDEC-DWS
TDEC-DWS

Priority Date:

Date/Time Received:

04/27/2009 11:45

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity:

Temperature:

Dissolved Oxygen:

Other: Flow:

CFS

TEST: Alkalinity, Total	METHOD: EPA 310.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Total Alkalinity	69	mg/L	3.8	10	M Chen	4/28/2009	

TEST: Hardness, Calcium	ME	THOD: SM 350	0-Ca D			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	49	mg/L	0.7	1	M Chen	4/27/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004449004

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: FINISH

Project Site No.: Station No.:

Date/Time Collected:

04/27/2009 10:05

Sampler's Name:

GEOFF KLEIN

County:

ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-DWS 327.39-12

Send Report To:

TDEC-DWS

Agency Invoiced:

TDEC-DWS

Priority Date:

Date/Time Received:

04/27/2009 11:45

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: **Dissolved Oxygen:**

Other:

Flow:

CFS

TEST: Alkalinity, Total	METHOD: EPA 310.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	59	mg/L	3.8	10	M Chen	4/28/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Calcium hardness	51	mg/L	0.7	1	M Chen	4/27/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit



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TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

Geoff Klein TDEC-DWS 200 East Race St

Knoxville, TN 37763

N00004449 Lab ID: Nashville Central Laboratory

Sampling Agency: TDEC: Division of Water Supply

Billing Code:

327.39-12

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

N00004449001

Project Name:

Sample Description: KINGSTON WTP

Sampler Project Name: RAW

Project Site No.: Station No.:

Date/Time Collected:

04/27/2009 09:30

Sampler's Name: County:

GEOFF KLEIN

Sample Matrix: EFO:

ROANE - 73 Water

Sampling Agency: **Billing Code:**

Knoxville **TDEC-DWS** 327.39-12

Send Report To: Agency Invoiced:

TDEC-DWS TDEC-DWS

Priority Date:

Date/Time Received:

04/27/2009 11:45

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: **Dissolved Oxygen:**

Other:

Flow:

CFS

TEST: Digestion Metals METHOD: EPA 200.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	04/28/2009	•			A Wilson	4/28/2009

TEST: ICP-MS	WE.					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	4/28/2009
Barium	22	μg/L	2.5	5	M Pattanayek	4/28/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	4/28/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	4/28/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	4/28/2009
Cobalt	0.23J	μg/L	0.04	1	M Pattanayek	4/28/2009
Lead	0.32J	μg/L	0.10	1	M Pattanayek	4/28/2009
Manganese	25	μg/L	0.42	1	M Pattanayek	4/28/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	4/28/2009
Thallium	0.63J	μg/L	0.03	1	M Pattanayek	4/28/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	4/28/2009

TEST: Mercury	METHOD: EPA 245.1						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Mercury	U	μg/L	0.029	0.2	A Wilson	4/28/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit **MQL - Method Quantitation Limit**

N00004449002

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

Date/Time Collected:

04/27/2009 09:35

Sampler's Name: County:

GEOFF KLEIN

Sample Matrix:

ROANE - 73 Water

EFO: Sampling Agency: Knoxville TDEC-DWS

Billing Code: Send Report To: Agency Invoiced: 327.39-12 **TDEC-DWS** TDEC-DWS

Priority Date:

Date/Time Received:

04/27/2009 11:45

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: **Dissolved Oxygen:**

Other:

Flow:

CFS

TEST: Digestion Metals	MET					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	04/28/2009				A Wilson	4/28/2009

TEST: ICP-MS	ME.	THOD: EPA 20	0.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Arsenic	U	μg/L	0.93	5	M Pattanayek	4/28/2009	
Barium	17	μg/L	2.5	5	M Pattanayek	4/28/2009	
Beryllium	U	μg/L	0.11	1	M Pattanayek	4/28/2009	
Cadmium	U	μg/L	0.41	1	M Pattanayek	4/28/2009	
Chromium	U	μg/L	2.0	5	M Pattanayek	4/28/2009	
Cobalt	0.099J	μg/L	0.04	1	M Pattanayek	4/28/2009	
Lead	U	μg/L	0.10	1	M Pattanayek	4/28/2009	
Manganese	U	μg/L	0.42	1	M Pattanayek	4/28/2009	
Selenium	U	μg/L	1.3	5	M Pattanayek	4/28/2009	
Thallium	0.21J	μg/L	0.03	1	M Pattanayek	4/28/2009	
Vanadium	U	μg/L	3.4	5	M Pattanayek	4/28/2009	

TEST: Mercury	METHOD: EPA 245.1						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Mercury	U	μg/L	0.029	0.2	A Wilson	4/28/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004449003

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: RAW

Project Site No.: Station No.:

Date/Time Collected:

04/27/2009 10:00 GEOFF KLEIN

Sampler's Name: County:

ROANE - 73

Sample Matrix: EFO: Sampling Agency:

Date/Time Received:

Water Knoxville

Sampling Agency:TDEC-DWSBilling Code:327.39-12Send Report To:TDEC-DWSAgency Invoiced:TDEC-DWS

Priority Date:

04/27/2009 11:45

Received By:

Digestion Metals

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other:

Flow:

CFS

4/28/2009

A Wilson

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE

04/28/2009

TEST: ICP-MS	ME"	THOD: EPA 20	0.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Arsenic	U	μg/L	0.93	5	M Pattanayek	4/28/2009	
Barium	21	μg/L	2.5	5	M Pattanayek	4/28/2009	
Beryllium	ឋ	μg/L	0.11	1	M Pattanayek	4/28/2009	
Cadmium	U	μg/L	0.41	1	M Pattanayek	4/28/2009	
Chromium	U	μg/L	2.0	5	M Pattanayek	4/28/2009	
Cobalt	0.13J	μg/L	0.04	1	M Pattanayek	4/28/2009	
Lead	U	μg/L	0.10	1	M Pattanayek	4/28/2009	
Manganese	11	μg/L	0.42	1	M Pattanayek	4/28/2009	
Selenium	U	μg/L	1.3	5	M Pattanayek	4/28/2009	
Thallium	0.14J	μg/L	0.03	1	M Pattanayek	4/28/2009	
Vanadium	U	μg/L	3.4	5	M Pattanayek	4/28/2009	

TEST: Mercury	METHOD: EPA 245.1						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Mercury	U	μg/L	0.029	0.2	A Wilson	4/28/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004449004

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: FINISH

Project Site No.: Station No.:

Date/Time Collected:

04/27/2009 10:05 GEOFF KLEIN

Sampler's Name: County:

ROANE - 73

Sample Matrix: EFO:

Water Knoxville

Sampling Agency: Billing Code:

TDEC-DWS 327.39-12 TDEC-DWS

Send Report To: Agency Invoiced:

TDEC-DWS

Priority Date:

Date/Time Received:

04/27/2009 11:45

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other:

Flow:

: CFS

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	04/28/2009				A Wilson	4/28/2009

TEST: ICP-MS	ME	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	4/28/2009
Barium	21	μg/L	2.5	5	M Pattanayek	4/28/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	4/28/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	4/28/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	4/28/2009
Cobalt	0.084J	μg/L	0.04	1	M Pattanayek	4/28/2009
Lead	U	μg/L	0.10	1	M Pattanayek	4/28/2009
Manganese	U	μg/L	0.42	1	M Pattanayek	4/28/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	4/28/2009
Thallium	0.10J	μg/L	0.03	1	M Pattanayek	4/28/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	4/28/2009

TEST: Mercury	ME	METHOD: EPA 245.1					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Mercury	U	μg/L	0.029	0.2	A Wilson	4/28/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit